

ABSTRACT OF THE DISCLOSURE

A high repetition rate, compact, modular gas discharge, ultraviolet laser. The laser is useful as a light source for very rapid inspections of wafers in an integrated circuit fabrication process. It is also useful for reticle writing at very rapid rates. A preferred embodiment operates at pulse repetition rates of 1000 to 4000 Hz and is designed for round-the-clock production line operation. This preferred embodiment comprises a pulse control unit which controls the timing of pulses to an accuracy of less than 4 nanoseconds. Preferred embodiments of this gas discharge laser can be configured to operate with a KrF gas mixture, an ArF gas mixture or an F₂ gas mixture, each with an approximate buffer gas, producing 248 nm, 197 nm or 157 nm ultraviolet light pulses.